U.S. Army Space and Missile Defense Command
Space and Missile Defense Technical Center
Directed Energy Office

MTHEL

Mobile Tactical High Energy Laser

Background

The ability to use High Energy Lasers (HEL) against short-range rockets was evaluated in the Nautilus program, an outgrowth of Project Strong Safety, in collaboration with Israel. After a series of static and dynamic tests, the program successfully destroyed a short-range rocket in flight on February 9, 1996. The success triggered the joint Tactical High Energy Laser (THEL) development effort with Israel resulting in the construction of the THEL Advanced Concept Technology Demonstrator (ACTD). The Nautilus and THEL programs were conducted primarily at the U.S. Army Space and Missile Defense Command (USASMDC) High Energy Laser Systems Test Facility (HELSTF) at White Sands Missile Range (WSMR), New Mexico. The next generation of tactical high energy lasers, Mobile THEL (MTHEL), will be more compact, mobile and easily transportable.

THEL ACTD

In April 1996, Israel's Prime Minister, Shimon Peres met with President Bill Clinton and Secretary of Defense William Perry. As a result of these meetings the United States made a commitment to assist Israel in the development of a THEL demonstrator to help Israel defend its northern cities from the threat posed by Katyusha and other short-range rockets.

In July 1996, a contract was awarded by USASMDC to TRW, Inc. of Redondo Beach, California for design, development, and fabrication of a transportable, tactical-sized THEL demonstrator. The effort included development and testing of a high-power laser/fluid supply assembly; a pointer/tracker; a command, control, communications and fire control system; modification of an interface with a radar provided by Israel; limited aspects of support equipment; and field testing in the United States.

The ACTD demonstrator's integration and historic June 6, 2000 Katyusha shootdown at HELSTF was completed in just nine months, less than four years from program start. Follow-on testing resulted in the first ever multiple shootdown of two Katyusha rockets on September 22, 2000. The test program culminated in a Limited Operational Capability (LOC) Experiment that resulted in the engagement of an operational, surprise attack with unknown launch points and launch times. These tests have resulted in an unprecedented twenty-five shootdowns that have been highly praised by defense officials in both Israel and the United States. The THEL ACTD is currently being used as a test bed for the follow-on program, MTHEL.

MTHEL Development

Transition to a Mobile THEL began early in FY01 with an amendment to the U.S. - Israeli THEL Memorandum of Agreement (MOA) initiating an MTHEL System Engineering and Trade Studies (SETS) program. At the end of 2001, the study defined a range of candidate MTHEL weapon system architectures that can be built with existing technology. The Army and Israel are looking at integrated high energy laser weapon systems mounted on mobile platforms ranging from flatbed trucks to light armored vehicles.

The program's goal is to develop a mobile prototype in four to five years. MTHEL will be designed to meet common U.S. and Israeli operational requirements, providing an initial operational capability to address U.S. Army transformation objectives and to help with Israeli border security by providing a defense against short-range missiles, rockets and other air defense threats.

Congress appropriated $13 million and Israel is providing another $10 million in FY02 for this project. Beginning in FY 03, the U.S. Army has budgeted for the development of a U.S./Israel MTHEL weapon system prototype.

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